Session No. 13

Course Title: Social Dimensions of Disaster, 2nd edition

Session 13: Disaster Research Methods

1 hr.

Objectives:

13.1 Discuss at least five strategies for locating sociological research studies

13.2 Describe at least four research designs used by disaster researchers

13.3 Describe at least four data collection techniques used by disaster researchers

13.4 Discuss and illustrate the use of probability and non-probability sampling strategies by disaster researchers

13.5 Discuss at least three common weaknesses in the study methods implemented by disaster researchers.

Scope:

In this session students are introduced to a survey of disaster research methods and key methodological issues. The survey includes strategies for locating relevant studies, alternative research designs, data collection techniques, sampling strategies, and common weaknesses in many disaster studies.

Readings:

Student Reading:

Drabek, Thomas E. 2002. "Following Some Dreams: Recognizing Opportunities, Posing Interesting Questions, and Implementing Alternative Methods." Pp. 127-153 in *Methods of Disaster Research*, edited by Robert A. Stallings. Philadelphia: Xlibris Corporation.

Professor Readings:

Mileti, Dennis S. 1987. "Sociological Methods and Disaster Research." Pp. 57-69 in *Sociology of Disasters: Contribution of Sociology to Disaster Research*, edited by Russell R. Dynes, Bruna DeMarchi and Carlo Pelanda. Milano, Italy: Franco Angeli.

Peacock, Walter Gillis. 1997. "Cross-National and Comparative Disaster Research." *International Journal of Mass Emergencies and Disaster* 15:117-133.

Background References:

Drabek, Thomas E. 1999. *Disaster-Induced Employee Evacuation*. Boulder, Colorado: Institute of Behavioral Science, University of Colorado (Appendix only, entitled, "The Study Methods," pp. 232-246).

Drabek, Thomas E. 1996. *Disaster Evacuation Behavior: Tourists and Other Transients*. Boulder, Colorado: Institute of Behavioral Science, University of Colorado (Appendix only, entitled "The Study Methods," pp. 343-354).

Drabek, Thomas E. 1970. "Methodology of Studying Disasters: Past Patterns and Future Possibilities." *American Behavioral Scientist* 13:331-343.

Cisin, Ira and Walter B. Clark. 1962. "The Methodological Challenge of Disaster Research." Pp. 23-47 in *Man and Society in Disaster*, edited by George W. Baker and Dwight W. Chapman. New York: Basic Books.

Yin, Robert K. 1984. *Comparative Study Research: Design and Methods*. Beverly Hills, California: Sage Publications.

General Requirements:

Overheads (13-1 through 13-8 appended).

See individual requirements for each objective.

Objective 13.1 Discuss at least five strategies for locating sociological research studies.

Requirements:

Use Overheads 13-1 and 13-2.

Remarks:

I. Session overview.

A. **Display** Overhead 13-1; "Session No. 13 Overview."

B. **Review** topics listed.

1. Strategies for locating disaster research studies.

2. Student exercise.

3. Research design alternatives.

4. Data collection techniques.

5. Sampling strategies and events.

6. Common study weaknesses.

II. Study location strategies.

A. **Display** Overhead 13-2; "Study Location Strategies".

B. **Review** and **illustrate** topics listed.

1. **Newsletters**.

a. *Natural Hazards Observer.*

1) Published **bimonthly**.

2) Natural Hazards Research and Applications Information Center staff, University of Colorado.

3) **Available free** upon request: Campus Box 482, Boulder, Colorado 80309-0482. (e-mail: hazctr@colorado.edu)

4) **Available** online at www.colorado.edu/hazards.

5) Approximate circulation in 2004: 19,000.

b. *IAEM Bulletin*.

1) Published **monthly**.

2) International Association of Emergency Managers.

3) **Free** to all IAEM members: 111 Park Place, Falls Church, Virginia 22046-4513 (web site: www.iaem.com).

4) Approximate circulation in 2003: 2,100.

c. *Unscheduled Events*.

1) Published **three times per year**.

2) International Research Committee on Disasters (Research Committee #39, International Sociological Association).

3) **Free** to all members of the IRCD: Professor Brenda Phillips, Secretary/Treasurer of IRCD, c/o Institute for Emergency Preparedness, Jacksonville State University, 700 North Pelham Road, Jacksonville, Alabama 36265 (e-mail: Brenda@jsucc.jsu.edu).

4) Approximate circulation in 2003: 500.

5) Editor: Henry W. Fischer III, Department of Sociology/Anthropology, P.O. Box 1002, Millersville University of Pennsylvania, Millersville, Pennsylvania 17551 (e-mail: hfischer@millersville.edu).

d. *TsuInfo Alert*.

1) Published **bi-monthly**.

2) Washington State Department of Natural Resources, Division of Geology and Earth Resources, P.O. Box 47007, Olympia, Washington 98504-7007 (e-mail: Connie.Mason@wadar.gov).

3) Available **electronically** at **no cost** at http://www.wa.gov/dnr/htdocs/ger/tsuinfo/indix.html (February 10, 2003).

2. **Conference attendance**.

a. **Numerous conferences** and training workshops are held annually, both throughout the U.S.A. and internationally. See above newsletters for dates and procedures.

b. **Natural Hazards Conference**.

1) Sponsored annually by the Natural Hazards Research and Applications Center, University of Colorado (see above for contact information).

2) Typically meets in July.

3) Attendance: 350 researchers and practitioners.

c. **IAEM Annual Conference**.

1) Sponsored by International Association of Emergency Managers (see above for contact information).

2) Typically meets in October.

3) Attendance: varies, approximately 1,500; nearly all are emergency management practitioners.

d. **Emergency Management Higher Education Conference**.

1) Sponsored by the Higher Education Project, Emergency Management Institute, Federal Emergency Management Agency.

2) Typically meets in June.

3) Attendance: approximately 100 professors who offer university and college courses in emergency management.

4) **Contact**: Higher Education Project Director, Dr. Wayne Blanchard (e-mail: w.blanchard@dhs.gov).

e. **Sociology associations**.

1) American Sociological Association; meets annually; typically has 3-4 sessions related to disaster, risk, and hazard research; web site: www.asanet.org.

2) International Sociological Association; meets every four years; next meeting scheduled for 2006; contact IRCD listed above.

3) Regional sociological associations meet annually; usually meet in Spring, e.g., Midwest Sociological Society, Pacific Sociological Society.

4) Social science associations include sections on sociology, e.g., Western Social Science Association meets annually in April.

3. **Library index searches**.

a. **Public libraries** have limited numbers of **research** journals.

b. **University** and many college libraries typically house relevant disaster journals, e.g., *International Journal of Mass Emergencies and Disasters* (**note:** when not available, many librarians welcome faculty requests for new journal subscriptions when class use is assured).

c. *Sociological Abstracts*: key indexing service for most sociology journals.

d. **Review journals**:

1) Good way to **"brainstorm"** for problem identification.

2) Quick reviews of **Table of Contents** of several issues may identify topics of interest.

3) **Article bibliographies** often identify additional literature of interest.

4) Relevant disaster journals include:

a) *International Journal of Mass Emergencies and Disasters*

b) *Disasters: The Journal of Disaster Studies and Management*.

c) *Industrial and Environmental Crisis Quarterly*.

d) *Australian Journal of Emergency Management*.

e) *Journal of Hazardous Materials*.

f) *The Environmental Professional*.

g) *Environmental Management*.

h) *Environment and Behavior*.

i) *Journal of Contingencies and Crisis Management*.

j) *Risk Analysis*.

4. **Internet searches**.

    a. Popular "search engines".

        1) Google.

        2) Yahoo.

        3) Alta-Vista.

    b. Search by author.

    c. Search by topic.

    d. Search by organization.

    e. Search by disaster event.

5. **Research centers**.

    a. Several Centers were **highlighted** in Session No. 3, "History of Sociological Research on Disaster."

    b. Many Centers maintain **publication lists**, e.g., Disaster Research Center, University of Delaware and Natural Hazards Research and Applications Center, University of Colorado. Each have **on-line listings**.

6. **Local agencies**.

    a. Community census data.

    b. Selected risk and hazard information.

    c. Community emergency management agency.

    d. Community planning agency.

    e. State and Federal offices, e.g., National Weather Service.

7. **Learning Resource Center** (LRC).

   a. Located at the National Emergency Training Center (NETC) in Emmitsburg, Maryland.

   b. NETC is a sub-unit of the Federal Emergency Management Agency.

   c. **Interlibrary loan permits** use of materials by faculty and students who are not FEMA personnel.

   d. **Contact**:

      1) Hours: 8:30-9:00 p.m. M-Th; 8:30-5:00 p.m. F; 4:00-8:00 p.m. Sat. and 12:00-4:00 p.m. Sunday.

      2) Telephone: 1-800-638-1821 (outside Maryland); 301-447-1030.

      3) Fax: 301-447-3217.

      4) E-mail: netclrc@dhs.gov

Supplemental Considerations:

This introduction to library research may be **very brief** depending on student backgrounds. Some professors may wish to assess student knowledge better by using a question and answer **interactive technique** once they have displayed the Overhead. For example, students could be asked about newsletters and conferences. While most may have little knowledge of these topics, they may be up to speed with library index searches or use of the internet based search engines. Thus, the presentations should be **modified** depending on student background.

Objective 13.2 Describe at least four research designs used by disaster researchers.

Requirements:

Use Overheads 13-3 and 13-4.

Following student exercise elaborate as necessary.

Remarks:

I. **Exercise**.

A. **Remind** students of exercise procedures.

B. **Divide** class into four groups and assign student roles.

1. Chair.

2. Reporter.

3. Timer.

C. **Announce time limit**: 5 minutes.

D. **Display** Overhead 13-3; "Workshop Tasks."

1. Group 1 – Identify and describe four types of research designs Drabek (2002) has used.

2. Group 2 – Using the course outline and your notes as resources, identify and describe four types of research designs used in research we have studied.

3. Group 3 – Identify and describe four types of data collection techniques used by Drabek (2002).

4. Group 4 – Using the course outline and your notes as resources, identify and describe four types of data collection techniques used in research we have reviewed.

E. **Start** discussion.

F. **Stop** discussion.

G. **Explain**: Group reports 3 and 4 will occur during the next section of this session.

II. Research design alternatives.

A. Group 1 report: 2 minutes.

B. **Elaborate** as required (all examples are from Drabek 2003).

1. **Case study design** (Indianapolis coliseum explosion).

2. **Comparative case study** (tourism and other transients).

a. Comparison **across events** using social criteria, e.g., length of forewarning.

b. Comparison **across transient types**, i.e.,

1) Tourists.

2) Business travelers.

3) Migrant workers.

4) Homeless people.

3. **Survey** (1965 Denver flood study).

4. **Laboratory study** (police communication system).

5. **Quasi-experimental study** (Topeka tornado study).

C. Group 2 report: 2 minutes.

D. **Display** Overhead 13-4; "Research Design Alternatives."

E. **Review** each design alternative; integrate examples from Group 2 report and elaborate as necessary.

F. **Case study design**:

1. **Definition**: in-depth examination of a single disaster event in a holistic manner.

2. **Alternative social systems**: could isolate a single organization, like a fire department, and focus on disaster response and impact.

3. **Course examples**:

a. Multiple analyses in the edited book on Hurricane Andrew could be viewed as a case study, i.e., Peacock et al. 1987.

b. Pfister 2002; Grafton flood response; summarized in Session No. 9; "Understanding Disaster Warnings".

4. **Additional examples**:

a. Moore et al. 1963; *Before the Wind*; Hurricane Carla in Texas, 1961.

b. Erikson. 1976; *Everything in Its Path*; flash flood in Buffalo Creek, West Virginia, 1972.

c. Taylor et al. 1990; *Tornado*; tornado in Topeka, Kansas, 1966.

d. Kroll-Smith and Couch 1990; *The Real Disaster is Above Ground*; coal mine fire in Centralia, Pennsylvania, began in 1962 through 1980s, with most of town being relocated.

e. Akin 2002; *The Forgotten Storm: The Great Tri-State Tornado of 1925*; following a long career as a professional geographer, the author returned to his roots and personal experiences during this tornado in which 695 people died.

G. **Comparative case study design**.

1. **Definition**: in-depth examination of selected social processes, e.g., evacuation, with cross-community and or cross-event comparisons made.

2. **Course examples**: Lindell and Perry, 1992.

a. Lindell and Perry (1992) four Washington state communities, evacuation prior to flooding.

b. Sorensen and Mileti (1998), reviewed evacuations in 24 prior studies.

c. Heath (2002) compared evacuations of pet and non-pet owners following a train derailment and subsequent propane explosions in Weyauwega, Wisconsin and flooding in Yuba County, California.

H. **Survey design**.

1. **Definition**: focused assessment of the distribution of selected behaviors and/or attitudes within a defined social system, typically a community.

2. **Course examples**:

a. Dow and Cutter (1998) surveyed reactions prior to Hurricanes Bertha and Fran which threatened South Carolina and nearby coastal areas in 1996.

b. Dow and Cutter (2000) assessed evacuation behavior during Hurricane Floyd which hit the southeastern coast in 1999.

I. **Laboratory study design**.

1. **Definition**: examination of aspects of disaster behavior within a laboratory wherein controlled conditions can be manipulated in accordance with theory testing requirements.

2. **Course examples**: **other than** the Drabek (2003) summary of the police communication system under stress, **no controlled laboratory** studies have been included. A few researchers have reported **simulation experiments**, however (e.g., Belardo, et al. 1983 and related articles by this team).

3. This method remains relatively unused by disaster researchers.

J. **Quasi-experimental study design**.

1. **Definition**: study subjects are identified (**not** assigned) as group for comparison to a control group. Typically disaster victims may be compared to a non-victim sample. Ideally, although rare, pre-event data for both groups can be compared to post-event responses.

2. **Course examples**: Sattler and Marshall (2002) randomly assigned study subjects to four types of hurricane informational advisories and then assessed the consequences.

3. **Discuss** (if necessary given Group 1 report) the basic design and types of study groups used in the assessment of the long-term impacts of the 1966 Topeka tornado (adapted from Drabek and Key 1984, p. 34).

    a. Pre-tornado interviewees (n = 1,354).

    b. Victim families identified from pre-tornado interview pool (n = 138).

    c. Control families selected from pre-tornado interview pool that best matched the victim families based on 18 control variables, e.g., ethnicity, age of household head, etc. (n = 138).

    d. Post-tornado interviews with same families in both control and victim samples.

    e. Comparison samples: post-tornado interviews only.

1) High income victim sample; n = 100.

2) High income comparison sample; n = 100 (non-victim).

3) Low income victim sample; n = 100.

4) Low income comparison sample; n = 100 (non-victim).

K. **Longitudinal study design**.

1. **Definition**: repeated measurements or assessments of a social system, or some component thereof, over a lengthy time period.

2. **Panel design**:

   a. Typically reflects two or three data collections, often from the same individuals.

   b. **Course example**: Atwood and Major (1998) assessed the impacts of the Browning earthquake prediction in three Missouri communities. Data were collected in November, 1990 (just prior to predicted date) and in February, 1991 (after prediction failed).

3. **Time series design**.

   a. **Definition**: numerous data points are reviewed to assess changes in behavior patterns.

   b. **Course example**: South Dade population impact study following Hurricane Andrew.

      1) See Morrow 1997, p. 13.

      2) Sub-contracted by the Florida International University team to the Bureau of Economic and Business Research, University of Florida.

      3) Study assessed population changes, movement, and insurance settlements.

   c. **Additional example**: Friesema et al. (1979) study.

      1. Four disasters selected.

         a) Yuba City, California, 1955 flood.

b) Galveston, Texas, 1961 Hurricane Carla.

c) Conway, Arkansas, 1965 tornado.

d) Topeka, Kansas, 1966 tornado.

2. Data points were compared for each of ten years prior to the disaster and ten years afterwards.

3. Impacts assessed included employment and unemployment rates, deaths, marriage and divorce rates, delinquency and crime rates, etc.

4. Major conclusions from this study will be detailed in Session No. 26; "Disaster Recovery and Change."

L. **Cross-cultural study designs**.

1. **Definition**: assessments of national or cultural differences in disaster behavior.

2. **Course examples**: none included; will be discussed in Session No. 43; "Multidisciplinary Perspectives in Emergency Management."

3. **Assessment** of potentials and difficulties; see Peacock 1997.

4. **Explain**: Drabek (2002) emphasized this design as very important for future studies.

Supplemental Considerations:

This brief survey of research design alternatives may go **very quickly if** most of the students have completed a course in research methods. If that is not the case, however, the objective is to **stimulate awareness** of study differences at the general level, **not** teach a methods course. The exercise will stimulate **critical thinking** but also permits **integration** of the various sessions to date.

Objective 13.3 Describe at least four data collection techniques used by disaster researchers.

Requirements:

Use Overhead 13-5.

Remarks:

I. Group reports.

A. Group 3 report (2 minutes).

B. Group 4 report (2 minutes).

II. Data collection techniques.

A. **Display** Overhead 13-5; "Data Collection Techniques."

B. **Integrate** and elaborate on the group reports as necessary in a review of the techniques listed.

C. **Observation**.

1. **Definition**: collection of data by direct observation of disaster behavior.

2. **Behavior observed** may be that of victims, non-victim helpers, or others.

3. **Course examples**:

a. **Tent city study**, Hurricane Andrew; Florida International University study team made direct observations while conducting interviews among victims (Morrow 1997, p. 13).

b. **Researchers as victims**: Peacock's ". . . family was without a permanent residence for months, and it was nearly a year before Elaine (Enarson) returned to her home." (Morrow 1997, p. 12).

c. **Additional example**: Taylor, Zurcher and Key (1970) made extensive direct observations of work groups following the 1966 Topeka tornado. All were Topeka residents, but all escaped major damage.

D. **Interview**.

1. **Face-to-face**.

a. **Definition**: interviewer and interviewee are in direct physical presence of each other to obtain answers to questions.

b. **Course example**: Dow and Cutter (1998) spoke to respondents they met " . . . at the entry to major stores (grocery and discount) in each community" (p. 243).

2. **Telephone**.

a. **Definition**: interviewee provides answers to questions during telephone based interaction with interviewer.

b. **Course example**:

1) Atwood and Major (1998); telephone interviews with residents (n = 629) of three southeastern Missouri communities to assess the impact of the Browning earthquake prediction.

2) "All interviews were conducted by undergraduate students in the Department of Mass Communications at Southeast Missouri State University. They were monitored by graduate students in research methods classes at Southern Illinois University at Carbondale. Faculty members from both institutions supervised all interviewing sessions." (p. 289).

E. **Questionnaires**.

1. **Definition**: collection of information through use of a written schedule on which respondents record their responses.

2. **Format**:

a. **Open-ended questions**, i.e., respondent records responses without constraint or guidance.

b. **Fixed choice questions**, respondent selects from a listing of possible answers.

3. **Course example**:

a. Sattler and Marshall (2002).

b. In experimental study of hurricane graphics, questionnaires were used wherein respondents selected from among five choices given.

c. **Example**: amount of time before landfall "(1=less than 24 hours, 2=25-36 hours, 3=37-48 hours, 4=more than 48 hours, 5=none of the above)". (p. 45).

F. **Secondary sources**.

1. **Published research studies** (literature review).

   a. All research articles include discussion of relevant studies.

   b. **Course example**: Drabek (1986) review is example of comprehensive assessment, over 1,000 studies included.

2. **Organizational data bases**.

   a. Use of data collected routinely by organization unit, e.g., city planning office or specialized agency, e.g., U.S. Census Bureau.

   b. **Course example**: Hurricane Andrew study, Morrow (1997, pp. 14-15) described annual data collections by the Bureau of Economic and Business Research at the University of Florida. These data were combined with U.S. Census data and other such information to conduct the "South Dade Population Impact Study."

   c. **Course example**: Gladwin and Peacock (1997) included zip code maps to illustrate variation in household evacuation rates (p. 63).

3. **Organizational documents and records**.

   a. Commonly used by researchers using a **case study design**, e.g., Drabek (1968) study of Indianapolis Coliseum explosion.

   b. **Organizational publications**, memoranda, critique reports, dispatch logs, and other such materials have been used by disaster researchers.

   c. In Drabek's (1968) study of the Indianapolis Coliseum explosion, **audio recordings** of police and fire department **radio operations** were analyzed.

4. **Media reports**.

   a. **Print media**, e.g., newspapers and magazine articles may provide context and historical materials.

b. **Electronic media**, especially ratio and television, may provide important historical documentation and/or contextual materials for researchers.

c. **Internet** access to local newspapers, for example, permit researchers to obtain quick overviews before starting field work. Subsequent materials may be downloaded and retained for cross-referencing field data.

5. **Other**.

a. **Diaries** and oral histories have been used.

b. **Course example**:

1) Session Number 15; "Victim Responses to Disaster."

2) Larson (2000) used diaries, oral histories, and newspapers to reconstruct victim behavior during the Galveston hurricane of 1900.

G. **Content analyses**.

1. **Media coverage**.

a. **Course example**: Wenger and Friedman (1986).

b. **Event**: Hurricane Alicia, 1983.

c. Session No. 8; "Sources of Disaster Myths"; Section 8.4.

d. Media analyzed: four newspapers and two new magazines.

2. **Movies**.

a. **Course example**: Mitchell et al. 2000.

b. Session No. 8, "Sources of Disaster Myths; Section 8.3.

c. 36 disaster movies were analyzed.

H. **Unobtrusive measures**.

1. Data obtained without directly asking disaster victims or response personnel.

2. **Course example**: Drabek (1968) study of Coliseum explosion included recordings of police and fire dispatch radios. These data verified interview data.

3. **Additional example**: Mileti et al. 1986.

    a. **Event**: response to nuclear accident at Three Mile Island (TMI) reactor.

    b. **Data**: sales of alcohol (also used official records regarding traffic accidents, crime rates, etc.)

    c. **Finding**: while the TMI event created some stress, it was ". . . slight, short-lived and not beyond levels typically experienced in a human population during annual events that typically induce stress, for example the Christmas holidays." (p. 109).

Supplemental Considerations:

This overview of alternative data collection may be **very brief** depending on the quality of the report by Groups 3 and 4. Use of the overhead will help to **organize the presentation** after the reports. Some instructors may wish to **expand** this section with additional illustrations. For example, assigned readings in **upcoming sessions** could be highlighted as could other research discussed throughout the remainder of this instructor guide.

Objective 13.4 Discuss and illustrate the use of probability and non-probability sampling strategies by disaster researchers.

Requirements:

Use Overhead 13-6.

Remarks:

I. Random probability samples.

A. **Display** Overhead 13-6; "Sampling Strategies and Issues."

B. **The Logic**.

1. A specific universe is defined, e.g., a city or state.

2. A **sample** of study respondents are selected randomly.

3. Results from the sample may be **generalized** to the entire universe within a specified margin of error.

C. **Course example**: Gladwin and Peacock 1997.

1. Session No. 10; "Public Warning Response"; assigned reading.

2. **Event**: Hurricane Andrew, 1992.

3. **Sampling procedure**:

a. **Universe**: Dade County.

b. **Sample**: over 1,000 households.

c. **Method**: telephone numbers selected randomly.

d. **Unique aspect**: call-forwarding and message recording devices facilitated the location and subsequent interviews with victims.

D. **Additional example**: Bourque et al. 1993.

1. **Event**: Loma Prieta earthquake, 1989.

2. **Sampling procedure**:

a. **Universe**: five county area; San Francisco.

b. **Sample**: 1,100 households selected.

c. **Method**: random digit dialing system.

d. **Unique aspect**: when household was selected, all persons over 18 years of age were listed and one was selected randomly for the telephone interview.

II. Non-probability samples.

A. **Convenience sampling**.

1. Selection of study subjects by a convenient process.

2. Researchers might **visit** a **victim shelter** or give questionnaires to students in a class.

3. **Course example**: Dow and Cutter, 1998.

    a. Session No. 11; "Community Evacuation Behavior", assigned reading.

    b. **Event**: Hurricanes Bertha and Fran, 1996.

    c. **Method**: researchers stood at entry doors to various grocery and discount stores and conducted face-to-face interviews (p. 243).

    d. **Unique aspect**: impact of "false alarm" phenomena was studied since damages were minimal in three communities selected.

        1) Hilton Head, South Carolina.

        2) Myrtle Beach, South Carolina.

        3) Wilmington, North Carolina.

4. **Course example**: Sattler and Marshall, 2002.

    a. Session No. 12; "Building Effective Warning Systems," assigned reading.

    b. **Event**: hypothetical hurricane graphics.

    c. **Method**: questionnaires distributed in college classrooms (social science) at College of Charleston (n = 378 students).

    d. **Unique aspect**: experimental design permitted testing the impacts of alternative graphics in hurricane warning messages.

B. **Purposive sampling**.

1. **Definition**: selection of study subjects by stating a specific purpose.

2. **Course example**: Wenger and Friedman (1986).

    a. **Event**: Hurricane Alicia, 1983.

    b. Session No. 8, "Sources of Disaster Myths", Section 8.4.

    c. **Method**: selected one local, three national newspapers, and two news magazines.

d. **Unique aspect**: the **sample** of print media were selected purposively to examine the frequency of mythological information.

3. **Course example**: Mitchell et al. 2000.

a. Session No. 8, “Sources of Disaster Myths”, Section 8.3.

b. **Method**: selected 36 disaster movies.

c. **Unique aspect**: content analysis documented types of myth and permitted comparison to earlier study by Quarantelli (1985) which focused on different myths.

C. **Theoretical sampling**.

1. **Definition**: selection of study events and/or subjects in accordance with stated criteria.

2. **Course example**: Drabek, 1996.

a. **Events**: Hurricanes Bob, Andrew and Iniki and earthquakes in Big Bear Lake and Los Angeles area (Northridge) of California.

b. Session No. 11; “Community Evacuation Behavior”, Section 11.6.

c. **Method**: Multi-event sample permitted analysis of differences and similarities in responses between lengthy forewarning (hurricane) and no forewarning (earthquake).

d. **Unique aspect**: study samples also designed theoretically to assess similarities and differences among four types of transients.

1) Tourists.

2) Business travelers.

3) Migrant workers.

4) Homeless persons.

3. **Course example**: Drabek, 1999.

a. **Events**: Hurricanes Felix and Fran, flooding in California, Nevada and Colorado.

b. Session No. 10; "Public Warning Responses".

c. **Method**: study design required a sample of business firms that varied in:

1) **Size** (number of full-time employees).

a) Small (15 or less).

b) Medium (16-99).

c) Large (100 or more).

2) **Mission**.

a) Manufacturing.

b) Service/people-focused, e.g., insurance, restaurant.

c) Service/object-focused, e.g., auto repair.

d) Shelter provider, e.g., nursing home, hotel.

d. **Unique aspect**: analysis of employee evacuation behavior in events with different qualities and firms that varied in size and mission.

Supplemental Considerations:

The **message** of this section is that researchers must **link** their **research questions** to the type of **sampling strategy** that is most appropriate. There is no single sampling strategy that fits every research inquiry. Too often students learn that **random samples** are a **requirement** for "good" research. This section should help them understand why this **simplistic** view is **wrong**. **Additional** example **studies** could be integrated into this section if the professor wished to **expand** it.

Objective 13.5 Discuss at least three common weaknesses in the study methods implemented by disaster researchers.

Requirements:

Use Overheads 13-7 and 13-8.

Remarks:

I. Introduction.

A. **Display** Overhead 13-7; "Common Study Weaknesses".

B. **Review** each topic listed and illustrate with comments below.

1. **Weak internal validity**.

a. **Internal validity**: is the assumed outcome due to the independent variable or could other factors better account for the observed variation?

b. **Example**: in studies of post-disaster stress, most researchers do not use control groups. Self-reported stress symptoms may reflect other factors.

c. **Course example**: will be explored in more detail in Session No. 29, "Disaster Stress."

2. **Inadequate sampling procedures**.

a. Frequent use of non-randomized samples.

b. **Example**: researchers conducting interviews at a few victim shelters does not provide a basis for **generalization** to any known or specified universe.

c. Propensity of practitioners to **generalize** findings **despite cautions** from researchers.

3. **Faulty measurements**.

a. Relatively few social variables are measured with much precision.

b. **Course example**: Sattler and Marshall, 2002.

1) Dependent variables assessed by questionnaire responses (p. 45).

2) A five-point scale was used, i.e., 1 = "strongly disagree" to 5 = "strongly agree".

3) Reaction items included: "I would take the situation seriously", "I would begin preparations".

4) No data presented regarding reliability or validity of measures.

4) Questionable relationship between what people say they would do within a hypothetical context and in actual responses to a hurricane.

4. **Contamination via data collection**.

a. Disaster victims seek to tell researchers what they think they want to hear.

b. **Course example**: more discussion in Session No. 29, "Disaster Stress".

c. **Example**: Erikson (1976).

1) Law students interviewed victims of Buffalo Creek, West Virginia flood (1973).

2) Victims knew their information was being collected for use in a law suit against a coal company that owned the dam that failed.

5. **Weak external validity**.

a. **External validity**: to what can the study results be generalized?

b. **Remind** students of Drabek (2000) discussion in prior student reading, i.e., Session No. 9, "Understanding Disaster Warnings" (see pp. 361-362 in Drabek 2000).

c. **Course example**: Dow and Cutter, 1998.

1) Convenience sample obtained by interviewing people outside various grocery and discount stores (p. 243).

2) Degree of generalization is minimal since sample was non-random and known universe not identified.

d. **Ask students**: "Can results from a study of a hurricane, even if victims are selected randomly from a defined universe, be generalized to a terrorist attack?"

1) What about other hurricanes in communities with very different populations, e.g., size or sub-cultures.

2) What about other events with minimal forewarning periods, like tornadoes or earthquakes?

3) **The message**: these are key research questions that remain **unanswered** today.

II. Future directions.

A. **Remind** students of Drabek (2002) discussion in conclusion of assigned reading, pp. 146-153.

B. **Display** Overhead 13-8; "Future Directions, Needs, and Potentials."

C. **Review** key points listed below and ask for student illustrations of each.

1. **Cross-national databases**.

2. **National disaster cost assessments**.

3. **Confirmation research**.

4. **Evaluation studies**.

5. **Laboratory and simulation studies**.

6. **Emergent multiorganizational systems**.

7. **Disaster life-cycle interdependencies**.

8. **Disasters and other social problems**.

9. **Cross-hazards databases**.

Supplemental Considerations:

The key message of this section is to **sensitize** students to the many forms and types of **limitations** in the existing disaster research knowledge base. A **balance** must be struck, however, between implying that nothing is known and accepting every finding as a trusted conclusion. This section could be **expanded easily** by including more discussion

of examples of weaknesses in studies and the range of topics for future research proposed by Drabek (2002). In short, depending on professorial interest, the entire session could be limited to one hour or **easily expanded** into two hours.

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